

## Letter from Alexander Graham Bell to Augustus Post, June 27, 1911, with transcript

Beinn Bhreagh , Near Baddeck , Nova Scotia . COPY June 27, 1911. Mr. Augustus Post,  
Alpha Delta Phi Club, 136 West 44th St., N. Y. Dear Mr. Post:

Many thanks for your stimulating letter of June 13. Major Squiers certainly has an enquiring mind; and I should think that any suggestions he would make would have some basis of truth about them.

It is certainly a novel and brilliant idea to have an aviator wear glasses that would enable him to see disturbances in the air. Whether such a thing is practicable or not, I am not prepared to say; and I do not know what visible effects are produced by disturbances of the air upon polarized light.

There are certain facts, however, well known, that have a bearing on the subject.

When light is passed through a mixture of air of different densities, the air becomes visible through the varying refraction produced in passing from one density to another: Witness the curious oily appearance observed above a hot poker, or stove, when you look through the disturbed air at a light, or an illuminated background. The same thing is seen in the desert under the action of a hot Sun. The heated air streaming upwards from the ground becomes distinctly visible against the background of the sky presenting 2 a curious, shimmering, oily effect. Other optical effects are also produced by an atmosphere in this condition — distortion of distant objects, mirages, etc.

Sound waves in the air have been directly photographed: So also have been the disturbances in the air produced by the passage of bullets. Of course in such cases the

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exposures have been instantaneous so that the disturbances have not had time to move before the exposures have been completed.

In regard to the other matter you mention:- I have had many opportunities during my recent trip around the world of watching the flight of the albatross. It certainly is the case that this bird can follow a ship and even overtake it against a head wind without a visible motion of his wings; and without any vertical tacking in the air comparable to the side tacking of a sailing vessel when going against the wind. I have observed this action of the albatross, not only when soaring in the disturbed air at the stern of the ship, but when at a distance from it. Many times I have noticed an albatross at a great distance behind the ship gradually overtaking it against a head wind; and have not been able to discern a motion of the wings.

The "aspiration" of a bird's wing is certainly a subject that should be fully investigated. "There are more things in Heaven and Earth, Horatio, than are dreamed of in our philosophy."

Yours sincerely, (Signed) Alexander Graham Bell.